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REMARKS

Claims 1-20 are currently pending in this application. Claims 12 and 17 have been amended to address typographical errors. No new matter has been added by these amendments. Applicant has carefully reviewed the Office Action and requests reconsideration of the claims in view of the remarks presented below.

Specification Objections

The "Cross-Reference to Related Applications" section of the specification has been amended to include the application serial number of the referenced application.

Claim Rejections Under 35 U.S.C. §102

Claims 1-6 and 8-20 were rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 6,641,542 (Cho et al.).

Each of independent claims 1, 18 and 20 relate to methods and systems for distinguishing Cheyne-Stokes Respiration (CSR) within a patient caused by central sleep apnea (CSA), from CSR caused by congestive heart failure (CHF) using an implanted medical device. For example, claim 1 recites a method in which a periodicity associated with CSR for the patient is detected and used as a basis for determining if the CSR of the patient is caused by CSA or if the CSR is caused by CHF.

Applicant traverses the rejections of independent claims 1, 18 and 20 because Cho et al. fails to disclose any system or method that involves a determination of whether a sleep event, in this case CSR, is induced by CSA or by CHF. Cho et al. merely discloses a system that detects and treats sleep respiratory events, one of which may be CSR. To that end, sleep respiratory events are counted over a time period (during sleep) to arrive at a parameter that is subsequently compared to a threshold parameter to determine if therapy is required. See figures 4 and 6 and associated text. Cho et al. is not concerned with determining the cause of sleep events, but only with determining the existence of sleep events and whether the sleep events warrant therapy.

Statements in Cho et al. regarding the use of CSR frequency and cycle length to monitor the possibility of CHF (column 8, lines 64-66) and measure the progression of CHF (column 9, lines 45-47) do not support the rejections of claims 1, 18 and 20 because these statements do not disclose determining if the CSR of the patient is caused by CSA. In fact, nowhere in Cho et al. is there any teaching or suggestion of determining if the CSR of the patient is caused by CSA. To the contrary, Cho et al. teaches that CSR is a form of CSA. See column 1, lines 44-45. With "**CSR is** a form of **CSA**" as a premise, there would never be any reason for Cho et al. to determine whether the CSR of the patient is caused by CSA. Cho et al. simply fails to recognize the possibility that CHF-induced CSR and CSA-induced CSR may be mutually exclusive. This possibility is recognized by the present invention and each of independent claims 1, 18 and 20 is directed to this possibility.

In view of the foregoing, Applicant submits that Cho et al. fails to teach the invention claimed in independent claims 1, 18 and 20. Accordingly, Applicant requests reconsideration of the §102 rejections of these claims and their respective dependent claims.

Although dependent claims 2-6, 8-17 and 19 are believed to depend from allowable base claims, Applicant believes the bases for rejections of some of these claims warrant further response.

Dependent claim 3 was rejected based on figure 6, element 660 and the Abstract of Cho et al. Specifically, figure 6, element 660 was cited as disclosing the claimed feature of "determining the average duration of periods of sleep apnea." Within the context of claim 3, this claimed feature occurs once sleep is detected and an episode of CSR has been detected during sleep. Figure 6, element 660 relates to the storage of a wake event that takes place after a patient is awake. See column 11, lines 15-18. Storing a wake event is not the same as "determining the average duration of periods of sleep apnea." Furthermore, the storage of the wake event takes place after the patient is awake, while the claimed feature occurs during sleep. Regarding the Abstract, it merely states that a processor extracts an average cycle length and frequency of CSR.

It does not disclose the claimed features of "determining the average duration of periods of breathing between the periods of sleep apnea during CSR, combining the average duration of periods of sleep apnea with the average duration of periods of breathing."

Dependent claim 5 was rejected based on the Cho et al. teaching that the frequency and cycle length of CSR may be used to measure the progression of CHF. See column 9, lines 45-47. Claim 5 expands upon the feature of determining whether the CSR of the patient is caused by CSA or by CHF based on periodicity. As stated above, Cho et al. fails to recognize the distinction between CSA-induced CSR and CHF-induced CSR, therefore, as a fundamental matter Cho et al. does not disclose any determination of whether CSR is caused by CSA or by CHF. Furthermore, the few lines from Cho et al. cited in support of the rejection, and the entire Cho et al. disclosure for that matter, fail to disclose features of claim 5, including in particular, the features of "generating a signal indicating that the CSR is induced by CHF, otherwise generating a signal indicating that the CSR is induced by CSA ."

Dependent claim 8 was rejected based on figure 6, element 610 of Cho et al. This element merely teaches that sleep apnea detection occurs during sleep. There is no disclosure of the claimed features of "detecting arousal of the patient from sleep and rejecting any determination of the periodicity associated with CSR if arousal from sleep occurred during the episode of CSR."

Dependent claim 15 was rejected based on column 9, line 55 of Cho et al. This portion of Cho et al. discusses the administration of therapy for treatment of sleep apnea. Although Cho et al. states a variety of methods are available in accordance with conventional practice, it only specifically discloses the use of overdrive pacing. This is not the same as delivering cardiac resynchronization therapy, as recited in claim 15.

PATENT

Claim Rejections Under 35 U.S.C. §103

Claim 7 was rejected under 35 U.S.C. §103(a) as being unpatentable over Cho et al.

In view of the foregoing analysis of independent claim 1 in view of Cho et al., Applicant believes that the rejections under §103 are rendered moot as dependent claim 7 depends from an allowable independent claim.

CONCLUSION

Applicant has made an earnest and bona fide effort to clarify the issues before the Examiner and to place this case in condition for allowance. Therefore, reconsideration and allowance of Applicant's claims 1-20 are believed to be in order.

Respectfully submitted,

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Date

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